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(FILE 'HOME' ENTERED AT 06:18:01 ON 17 SEP 2001)

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L1 40166 S POLY?(4A) (ANILIN? OR THIOPHEN? OR PYRROL? OR METHYLPYRROL? OR EDOT
OR ETHYLENEDIOXYTHIOPHENE) OR POLYANILI? OR POLYPYRROL? OR
POLYTHIOPHEN? OR POLYEDOT OR POLYETHYLENEDIOXYTHIOPHENE
L2 4867 S L1 AND(CARBON BLACK OR GRAPHITE OR FILLER OR PARTICLE OR PARTICUL?)
L3 4488 S L1 AND(CONDUCTOR? OR NOSE OR TASTE OR OLEFACT? OR OLFACTO? OR ARRAY)
L4 546 S L2 AND L3
L5 78 S L4 AND(SENSOR OR SENSING OR DETECTOR OR DETECTING OR DETECTION OR
MEASUR?)
L6 468 S L4 NOT L5
L7 103 S L6 AND(CONDUCTIVE POLYMER OR ELECTROCOND?(2A) FIBER)
L8 181 S L5, L7
L9 128 S L8 NOT PY>1998
L10 84 S L8 AND PATENT/DT AND PY<1999
L11 145 S L9-10
L12 36 S L8 NOT L11
L13 1 S L12 AND BIOGENIC

=> d bib, ab l11 1-145

L11 ANSWER 5 OF 145 CA COPYRIGHT 2001 ACS
AN 129:254110 CA
TI Quantitative study of the resolving power of arrays of carbon black-polymer
composites in various vapor-sensing tasks
AU Doleman, Brett J.; Lonergan, Mark C.; Severin, Erik J.; Vaid, Thomas P.;
Lewis, Nathan S.
CS Division of Chemistry and Chemical Engineering, California Institute of
Technology, Pasadena, CA, 91125, USA
SO Anal. Chem. (1998), 70(19), 4177-4190
AB A statistical metric, based on the magnitude and std. deviations along
linear projections of clustered array response data, was used to facilitate
an evaluation of the performance of detector arrays in various vapor class-
ification tasks. This approach allowed quantification of the ability of a
14-element array of carbon black-insulating polymer composite chemiresist-
ors to distinguish between members of a set of 19 solvent vapors, some of
which vary widely in chem. properties (e.g., methanol and benzene) and
others of which are very similar (e.g., n-pentane and n-heptane). The data
also facilitated evaluation of questions such as the optimal no. of detect-
ors required for a specific task, whether improved performance was obtained
by increasing the no. of detectors in a detector array, and how to assess
statistically the diversity of a collection of detectors to understand more
fully which properties are underrepresented in a particular set of array
elements. The resolving power of arrays of carbon black-polymer composites
was compared to the resolving power of specific collections of bulk
conducting org. polymer or tin oxide detector arrays in a common set of
vapor classification tasks.

L11 ANSWER 11 OF 145 CA COPYRIGHT 2001 ACS
AN 128:160232 CA
TI The electrocatalytic oxidation of methanol at finely dispersed platinum
nanoparticles in polypyrrole films
AU Hepel, Maria
CS Dep. Chem., State Univ. New York Coll. at Potsdam, Potsdam, NY, 13676, USA
SO J. Electrochem. Soc. (1998), 145(1), 124-134
AB A new method of the formation of composite polypyrrole films contg. a

highly dispersed three-dimensional array of platinum catalyst particles is presented. PtCl_4^{2-} anions were trapped inside the polypyrrole matrix during the electropolymerization of pyrrole. In the next step followed by solution exchange, PtCl_4^{2-} anions were reduced to Pt^0 particles with an average size of 10 nm. Metallic particles were incorporated in electrically conducting polypyrrole films to achieve multielectron-transfer processes in a three-dimensional matrix. These films were characterized using the electrochemical quartz crystal microbalance technique. The use of this technique allowed the authors to evaluate the Pt^0 loading inside the polymer film. The electropolymerization process was controlled by measuring frequency changes of piezoelectrodes. The presence of Pt^0 particles in composite polypyrrole films and their uniform distribution were confirmed by energy-dispersive x-ray spectroscopy and x-ray diffraction. The size of the Pt^0 particles was evaluated from TEM experiments. The electrocatalytic effect toward the methanol oxidation was observed. Larger surface area and higher catalytic activity were found for electrodes with dispersed Pt^0 nanoparticles in the polymer matrix than electrodes with electrodeposited Pt^0 on the surface of the conductive polymer.

L11

ANSWER 13 OF 145 CA COPYRIGHT 2001 ACS

AN

127:247521 CA

TI

A conductimetric system based on polyaniline for determination of ammonia in fertilizers

AU

Laranjeira, Jane Maria Goncalves; De Azevedo, Walter Mendes; De Araujo, Mario Cesar Ugulino

CS

Laboratorio de Automacao em Quimica Analitica (LAQA), Departamento de Quimica Fundamental, Universidade Federal de Pernambuco-CCEN, Joao Pessoa, 58051-970, Brazil

SO

Anal. Lett. (1997), 30(12), 2189-2209

AB

A simple conductimetric system to determine ammonia concentration using a sensor based on a conductor polymer was developed. The sensitive element to ammonia is a thin polyaniline film deposited by chemical synthesis in an acrylic substrate prepared before hand with two graphite electrodes. The conductance of the polyaniline film decreases when exposed to the ammonia gas and this variation can be related to the ammonia concentration. To determine ammonia in fertilizer samples a system consisting of a measurement cell, a conductance meter and a strip chart recorder was used. The results were compared with those obtained by three different labs. employing a Kjeldahl method and are in good agreement. The detection range of the system was 0.6 to 3.7 $\mu\text{g.mL}^{-1}$ with a response time of 4 min. The relative standard deviation of the proposed method was about 5%.

L11

ANSWER 20 OF 145 CA COPYRIGHT 2001 ACS

AN

125:236084 CA

TI

Conductive polymer composition and its preparation

IN

Kudoh, Yasuo; Kojima, Toshikuni; Akami, Kenji

PA

Matsushita Electric Industrial Co., Ltd., Japan

SO

Eur. Pat. Appl., 16 pp.

PI

EP 727788 A2 19960821 EP 1996-102349 19960216

US 5895606 A 19990420 US 1996-602645 19960216

PRAI

JP 1995-29431 A 19950217

AB

A conductive polymer composition comprises a conjugated double bond-bearing polymer and a composite dopant consisting essentially of an organic anion derived from an anionic surfactant and an inorganic anion derived from a transition metal salt. A process for preparing the conductive polymer composition is also described, where the polymerization proceeds rapidly with the coexistence of the organic and inorganic anions. The addition of fine particles of an oxide is effective in film formation on substrates.

L11 ANSWER 23 OF 145 CA COPYRIGHT 2001 ACS

AN 125:155847 CA

TI Composition containing a polymer and conductive filler and use thereof
IN Angelopoulos, Marie; Brusic, Vlasta A.; Graham, Teresita Ordonez;
Purushothaman, Sampath; Roldan, Judith Marie; Saraf, Ravi F.; Shaw, Jane
Margaret; Viehbeck, Alfred

PA International Business Machines Corp., USA

SO Eur. Pat. Appl., 11 pp.

PI	EP 717418	A2	19960619	EP 1995-118610	19951127
	US 5700398	A	19971223	US 1994-356026	19941214
	US 5776587 ✓	A	19980707	US 1997-928497	19970912
	US 5916486 ✓	A	19990629	US 1997-928496	19970912
	US 5922466 ✓	A	19990713	US 1997-928468	19970912
	US 5985458 ✓	A	19991116	US 1997-928464	19970912
	US 6015509 ✓	A	20000118	US 1997-928495	19970912
	US 5997773 ✓	A	19991207	US 1999-249302	19990212

PRAI US 1994-356026 19941214

AB A compn. contg. a polymeric matrix and a conductive filler component is provided. The conductive filler component comprises conductive particles and a polymer selected from the group consisting of substituted and unsubstituted polyanilines, substituted and unsubstituted polyparaphenylenevinyls, substituted and unsubstituted polythiophenes, substituted and unsubstituted polyazines, substituted and unsubstituted polyparaphenylenes, substituted and unsubstituted polypyrroles, substituted and unsubstituted polyselenophene, substituted and unsubstituted poly-p-phenylene sulfides, and substituted and unsubstituted polyacetylenes, and mixts. thereof, and copolymers thereof. Compns. of the present invention are useful as corrosion protecting layers for metal substrates, for electrostatic discharge protection, electromagnetic interference shielding, and as adhesives for interconnect technol. as alternatives to solder interconnections. In addn., films of polyanilines are useful as corrosion protecting layers with or without the conductive metal particles.

L11 ANSWER 28 OF 145 CA COPYRIGHT 2001 ACS

AN 124:318996 CA

TI Dielectric properties of conductive composites at microwave frequencies

AU Forsyth, M.; Gregory, E.; Davie, E.; McCulloch, D.

CS Department Materials Engineering, Monash University, Clayton, 3168, Australia

SO Adv. Sci. Technol. (1995), 4 (New Horizons for Materials), 279-286

AB The cond. and dielec. properties of conductive polymer composites based on polypyrrole, polyaniline and carbon black fillers combined with polyurethane and polystyrene matrixes are presented. Real and imaginary permittivity of these composites are measured at frequencies between 0.2GHz and 18GHz using various sample configurations. The DC cond. of these composites display the typical percolation behavior previously obsd. in such materials. Electron microscopy indicates that the conductive particles are not homogeneously distributed within the matrix, particularly in the case of the intrinsically conductive polymers. The effect of the filler concn. on the microwave dielec. properties is also discussed. Polypyrrole composites have considerably higher permittivities than those based on carbon black, despite the higher cond. and lower percolation threshold of the carbon black composites.

L11 ANSWER 30 OF 145 CA COPYRIGHT 2001 ACS

AN 124:304251 CA

TI Electrically conductive polymeric compositions

IN Hedges, Winston L.
PA Hexcel Corp., USA
SO U.S., 12 pp. Cont.-in-part of U.S. Ser. No. 930,738.
PI US 5498372 A 19960312 US 1994-195399 19940214
PRAI US 1992-930738 A2 19920814
AB Elec. conductive polymeric compns. suitable for fabricating devices for safely transporting volatile chems. and fuels are disclosed. The elec. conductive polymeric compns. include ≥ 1 nonconductive matrix polymer and an elec. conductive filler material incorporated in the matrix polymer in an amt. sufficient to provide the conductive polymeric compn. with an elec. cond. of $\geq 10^{-10}$ S/cm. The elec. conductive filler material is intrinsically conductive polymer-coated C black particles. The coating of intrinsically elec. conductive polymer provides a protective shield against loss of particle cond., contributes to the overall cond. of the filler material, and enhances the mech. properties of the filled matrix polymer.

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LI1 ANSWER 34 OF 145 CA COPYRIGHT 2001 ACS

AN 123:351240 CA

TI Zeta potential measurements on conducting polymer-inorganic oxide nanocomposite particles

AU Butterworth, M. D.; Corradi, R.; Johal, J.; Sascelles, S. F.; Maeda, S.; Armes, S. P.

CS Sch. Chem. Mol. Sci., Univ. Sussex, Falmer/Brighton, BN1 9QJ, UK

SO J. Colloid Interface Sci. (1995), 174(2), 510-17

Adams
AB We describe some of our present results on the characterization of aq. colloidal dispersions of conducting polymer-inorg. oxide nanocomposite particles. Such colloids are easily prepd. by synthesizing the conducting polymer in the presence of com. available ultrafine silica (or tin(IV) oxide) particles in aq. media. In the present the study we present electrokinetic data as a function of pH for the following systems: polypyrrole-silica, carboxylic acid-functionalized polypyrrole-silica, amine-functionalized polypyrrole-silica, polyaniline-silica, and polypyrrole-tin(IV) oxide colloids. These data show that both the isoelec. points and zeta potentials of these nanocomposite dispersions are governed primarily by the nature of the charged groups at the inorg. oxide surface rather than by the conducting polymer component. This suggests that the inorg. oxide is the major component at the particle surface, which is consistent with the excellent long-term colloid stability of these dispersions. The aq. electrophoresis measurements also indicate that our surface functionalization expts. were successful: Carboxylic acid groups can be incorporated via copolymn. using an appropriate functional pyrrole comonomer, while amine groups can be introduced via derivatization of the silica component using 3-aminopropyl triethoxysilane.

✓
LI1 ANSWER 40 OF 145 CA COPYRIGHT 2001 ACS

AN 123:170655 CA

TI Electrically conductive pyrrole polymers

IN Myers, Ronald E.

PA B. F. Goodrich Co., USA

SO U.S., 11 pp. Cont.-in-part of U.S. 4,764,573.

PI US 5407699 A 19950418 US 1988-215700 19880705

US 4764573 A 19880816 US 1985-761711 19850802

PRAI US 1984-618701 19840608

AB A process is provided for forming an elec. conductive polymer of a pyrrole monomer, optionally substituted at the 3- and 4- positions. The process comprises dispersing a polymn. initiator selected from the group consisting of anhyd. halides of iron, cobalt or nickel in an anhyd. liq. reaction medium and, adding essentially pure pyrrole monomer, or a soln. of the

monomer in the liq. at a temp. in the range from about -20° to below about the b.p. of the soln. Pyrrole polymers formed are metal halide counterions and conductive material having a cond. 1-150 Ω -1cm-1 or semiconductive material having a cond. 10-3-1 S/cm, depending upon the particular structure of the monomer, the ratio of the initiator to pyrrole monomer, and the mol. wt. of the polymer formed.

✓
LM ANSWER 43 OF 145 CA COPYRIGHT 2001 ACS

AN 123:95985 CA

TI Morphology Control in Electrochemically Grown Conducting Polymer Films. 3. A Comparative Study of Polyaniline Films on Bare Gold and on Gold Pretreated with p-Aminothiophenol

AU Sabatani, Eyal; Gafni, Yael; Rubinstein, Israel

CS Department of Materials and Interfaces, Weizmann Institute of Science, Rehovot, 76100, Israel

SO J. Phys. Chem. (1995), 99(32), 12305-11

AB Polyaniline (PANI) films deposited galvanostatically on gold electrodes precoated with self-assembled monolayers of p-aminothiophenol (PATP) exhibit significantly higher optical densities than similar polymer films deposited on bare gold, as measured by in situ ellipsometry. At the same time there is no change in the total mass of the deposit or in the amt. of polymer, as indicated by in situ quartz crystal microbalance measurements and by ex situ Rutherford backscattering results, resp. It is therefore concluded that PANI grown on Au/PATP is considerably denser than PANI grown on bare Au. Failure of other self-assembled monolayers to produce a similar effect suggests that the chem. resemblance of PATP to the aniline monomer is a key factor in its ability to alter the morphol. of electro-deposited PANI. The a.c.-impedance measurements indicate that the morphol. change (i.e., densification) is accompanied by pronounced improvement in the electrochem. response of PANI. In particular, the insulator/ conductor switching rate is enhanced for PANI grown on Au/PATP relative to PANI grown under similar conditions on bare Au. Also, a substantial increase in the rate of discharge is obsd. for fresh PANI on Au/PATP when applying a cathodic bias to the electrode. Probably morphol. restructuring is the limiting step during initial discharge of PANI grown on bare Au.

LM ANSWER 50 OF 145 CA COPYRIGHT 2001 ACS

AN 122:189535 CA

TI Composites of Polypyrrole and Carbon Black. 2. Electrosynthesis, Characterization and Influence of Carbon Black Characteristics

AU Wampler, Wesley A.; Wei, Chang; Rajeshwar, Krishnan

CS Fort Worth Research Center, Sid Richardson Carbon Co., Fort Worth, TX, 76106, USA

SO Chem. Mater. (1995), 7(3), 585-92

AB A variety of polypyrrole (ppy)-carbon black composites with the carbon black content ranging from 10 to ~80 wt % were electrochem. synthesized from aq. dispersions of carbon black contg. pyrrole monomer. An electro-trapping mechanism is proposed for the composite film growth; the neg. charged carbon black particles are attracted toward the (pos. charged) anode surface where they are assimilated into the growing ppy matrix. The presence of carbon black enhanced the charge-storage capacity and the electronic cond. of the parent polymer in the resultant electrocomposite as measured by cyclic voltammetry in 0.1 M KCl. The influence of carbon black characteristics on these two properties of the composite was explored by examg. composites electrochem. synthesized from seven com. blacks encompassing a wide range of surface area, porosity, void vol., and electronic cond. Two different carbon black soln. loads (10 and 20 g/L) were employed in these expts. The carbon black porosity and its sp. surface area exerted

a pos. effect on the ability of the ppy-carbon black composite to store charge. Similarly, an increase in the structure of the carbon black had a pos. effect on the c.d. (i.e., the electronic cond.) of the resultant composite. However, the Printex XE-2 carbon black based composite showed anomalously low charge-storage capacity and c.d. in 0.1 M KCl despite the high porosity and structure of its carbon black component. Possible reasons for this are discussed as are data obtained by previous researchers on other types of ppy-carbon composites.

LV1 ANSWER 57 OF 145 CA COPYRIGHT 2001 ACS

AN 121:256975 CA

TI Polypyrrole composites containing platinum or carbon black: from synthesis to novel applications

AU Rajeshwar, K.; Wei, C.; Wampler, W.; Bose, C. S. C.; Basak, S.; German, S.; Evans, D.; Krishna, V.

CS Dep. Chem. Biochem., Univ. Texas, Arlington, TX, 76019-0065, USA

SO Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) (1994), 35(1), 234-5

AB Modification of the electrochem. properties of polypyrrole with Pt or carbon black is described. These composites exhibited enhanced properties relative to the neat polymer. The use of these materials in new applications involving pollutant remediation/sensing, and in supercapacitor devices is finally demonstrated.

LV1 ANSWER 59 OF 145 CA COPYRIGHT 2001 ACS

AN 121:193358 CA

TI Dispersion of electrically conductive particles in a dispersing medium

IN Wiersma, Aaltje Elizabeth; Van de Steeg, Lucia Maria Angel

PA DSM N.V., Neth.

SO Eur. Pat. Appl., 13 pp.

PI EP 589529 A1 19940330 EP 1993-202714 19930920

US 5415893 A 19950516 US 1993-125245 19930923

PRAI NL 1992-1657 19920924

AB The dispersion comprises a binder and an elec. conductive polymer, and a stabilizer in a dispersing medium. The particles contain a non-ionic stabilizer. The stability of the dispersion is very good. In addn. the dispersion is extremely suitable for providing objects with a coating having good elec. conductive, distribution, and adherent properties.

LM ANSWER 60 OF 145 CA COPYRIGHT 2001 ACS

AN 121:168318 CA

TI Conducting polymer film containing nanodispersed catalyst particles: a new type of composite material for technological applications

IN Rajeshwar, Krishnan; Bose, Chalasani S. C.

PA University of Texas System, USA

SO U.S., 43 pp.

PI US 5334292 A 19940802 US 1992-931212 19920817

AB An electronically conductive polymer (preferably polypyrrole) film comprises colloidal catalytic (Pt) particles (≤ 10 nm) homogeneously dispersed therein. A method for producing the film comprises prepg. a colloidal suspension of catalytic particles in a soln. comprising an electronically conductive polymer precursor. An electronically conductive polymer film is then electrosynthesized, incorporating homogeneously dispersed colloidal catalytic particles. Colloidal Pt particles are produced by citrate redn. of Pt(IV) to Pt⁰. A porous conductive polymeric matrix includes homogeneously dispersed colloidal catalytic particles to catalyze a reaction involving subsection of reactants to this material in an electrochem. conductive or other context. Advantages of this type of catalysis involves ready retrieval of the catalytic particles, efficient utilization of

expensive catalytic particles such as Pt, resistance of the particles to at least high mol. wt. poisons which will not penetrate the polymeric matrix and, finally, the lack of satn. of catalytic activity in contrast to that seen with surface coated thin polymer layers.

L11 ANSWER 81 OF 145 CA COPYRIGHT 2001 ACS

AN 118:14861 CA

TI Electrically conductive-polymer-coated metal particles

IN Hosokawa, Hiroshi; Kamada, Kensuke

PA Mitsubishi Rayon Co., Ltd., Japan

SO Eur. Pat. Appl., 10 pp.

PI EP 488321 A1 19920603 EP 1991-120442 19911128

US 5215820 A 19930601 US 1991-799228 19911127

PRAI JP 1990-339674 A 19901130

AB Fine metal particles coated with elec. conductive polymers are protected from oxidn. and have improved handling properties. The conductive polymer may contain a polymeric electrolyte as a dopant.

L11 ANSWER 87 OF 145 CA COPYRIGHT 2001 ACS

AN 117:152336 CA

TI Conducting polymer composites. Polypyrrole-metal oxide latexes

AU Partch, R. E.; Gangolli, S. G.; Owen, D.; Ljungqvist, C.; Matijevic, E.

CS Cent. Adv. Mater. Process., Clarkson Univ., Potsdam, NY, 13699, USA

SO ACS Symp. Ser. (1992), 492(Polym. Latexes), 368-86

AB Elec. conducting latexes of polypyrrole (I) coated on inorg. cores were obtained by deposition of pyrrole on catalytically active particles. The finely dispersed core materials were hematite (polyhedral and spindle-type), silica coated with hematite, magnetite, and CeO₂. The degree of polymer coverage could be controlled by varying the aging time and the properties of the carrier particles. Also, Y basic carbonate was coated on I latex. The coated particles were characterized by TEM, elemental and thermogravimetric analyses, electrophoresis, x-ray diffraction, and cond. measurements. The d.c. cond. of all but the magnetite particles coated with polymer were comparable to those reported for pure I and they increased with pressure.

L11 ANSWER 95 OF 145 CA COPYRIGHT 2001 ACS

AN 114:209263 CA

TI Coated particulate metallic materials for EMI and/or RFI shielding and method of coating

IN Kathirgamanathan, Poopathy

PA Cookson Group PLC, UK

SO Eur. Pat. Appl., 11 pp.

PI EP 403180 A2 19901219 EP 1990-306274 19900608

US 5225110 A 19930706 US 1990-535057 19900608

PRAI GB 1989-13512 19890613

AB Powder or flake or granular metallic materials are coated with conductive polymer. Ni spheres were added to a soln. of aniline in H₂O, an acid, e.g. aq. p-MeC₆H₄SO₃H, soln. was added, (NH₄)₂S₂O₈ was added, and the mixt. stirred to coat the spheres (10% polyaniline). C black and coated spheres (ratio 10:30) were compounded with ethylene-propylene copolymer (melt index 2-4) to give material for EMI shielding (90% effective at 0.1 MHz).

L11 ANSWER 112 OF 145 CA COPYRIGHT 2001 ACS

AN 110:194356 CA

TI Electric conductive carbon black- and/or graphite-containing polymer composite films

IN Kashiwazaki, Shigeru; Konishi, Shiro

PA Hitachi Cable, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
PI JP 63308807 A2 19881216 JP 1987-144375 19870610
AB Elec. conductive composite films, having balanced tensile strength and elongation, are prepd. from carbon black- and/or graphite-contg. polymer films and elec. conductive polymer layers, e.g. pyrrole (I) or its deriv. A film prepd. by electrolytically polymg. I and tetraethylammonium fluoroborate in MeCN soln. on carbon black (5%)-contg. PVC-coated (30 μ m) Pt electrode had elec. cond. 1.8×10 s/cm, tensile strength 28 MPa, and elongation 25%, vs. 2.0×10 , 35, and 4, resp., for polypyrrole only.

L11/ ANSWER 116 OF 145 CA COPYRIGHT 2001 ACS

AN 110:127768 CA

TI Ion-selective electrode having a non-metal sensing element

IN Geist, Jill M.; Schapira, Thomas G.; Messner, Scott C.

PA Abbott Laboratories, USA

SO Eur. Pat. Appl., 13 pp.

PI EP 291904 A2 19881123 EP 1988-107817 19880516

US 4889612 A 19891226 US 1987-53446 19870522

PRAI US 1987-53446 19870522

AB This electrode comprises an elec. insulating substrate having a substantially planar 1st surface; a nonmetallic conductor on the 1st surface; means affixed to this 1st surface and coupled to the conductor, for sensing a potential located at a situs free of metalization; and an elec. insulating layer covering a portion of the conductor. The means for sensing comprises a nonmetallic, conductive layer, and an exposed ion-selective membrane covering the conductive layer. The elec. insulating layer comprises a 1st stratum affixed to the 1st surface, a 2nd stratum wherein at least a portion thereof is intersolubilized with the membrane layer, and a 3rd stratum covering the 2nd stratum. This electrode may also comprise a field-effect transistor, a nonmetallic conductive offset gate coupled to the field-effect transistor; an exposed ion-selective membrane layer covering the offset gate; and an elec. insulating layer covering at least a portion of the nonmetallic conductive gate. The nonmetallic conductive material may include graphite in a suitable supportive and binding matrix or may include a conductive polymer, such as polyacetylene and polypyrrole among others. In this way, metalization is not used on the surface of the device which contacts an analyte.

L11/ ANSWER 119 OF 145 CA COPYRIGHT 2001 ACS

AN 109:171544 CA

TI Electrically conductive composite manufacture

IN Tamura, Shohei; Sasaki, Sadamitsu; Abe, Masao; Ichinose, Takashi

PA Nitto Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

PI JP 63120733 A2 19880525 JP 1986-266284 19861108

AB Composites with elec. cond. $>10^{-6}$ S/cm, contg. electron acceptor dopants, are prepd. by oxidative polymn. of PhNH₂, derivs., or salts in solvents contg. carbon black. A soln. of water 52, 97% H₂SO₄ 15, AcOH 52, and PhNH₂ 7.79 g was mixed with 0.29 g Ketjenblack EC in an ultrasonic disperser, cooled to 5.8°, and stirred with 6.85 g (NH₄)₂S₂O₈ for 1 h to give a bright green polymer with elec. cond. 9.2 S/cm; vs. 3.2 without carbon black. Cond. was increased to 12.5 S/cm by pretreating the carbon black with H₂O₂.

L11/ ANSWER 121 OF 145 CA COPYRIGHT 2001 ACS

AN 108:187479 CA

TI Manufacture of highly electrically conductive polymer compositions

IN Ikezaki, Takashi; Kira, Masaaki; Yamamoto, Satoshi; Murakoshi, Yoshihiko

PA Showa Denko K. K., Japan; Hitachi, Ltd.
SO Jpn. Kokai Tokkyo Koho, 4
PI JP 62257968 A2 19871110 JP 1986-100854 19860502
AB Compns. with improved moldability and mech. strength, useful for electrodes and condensers, are prepd. by polymg. anilines I (R1-R6 = H, halo, amino, nitro, C1 to req. 10 alkyl or alkoxy, allyl, C6-10 aryl) in the presence of elec. conductive materials and powd. thermoplastic resins. Thus, 20 g PhNH2 was polymd. in aq. HCl contg. 2.0 g Ketjenblack and 4.0 g linear low-d. polyethylene (II) powder at 40° under addn. of 66.7 g (NH4)2S2O8 for 4 h, then the product

=> log y

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